

What is claimed is:

1. An integrated microchip system, comprising:
 - (i) a plurality of microchips containing capillary channels, edge joined
5 together, and spring biased towards each other; and
 - (ii) means for linearly moving said microchips against one another; wherein the capillary channels in said microchips can be connected or disconnected by the movement.
- 10 2. The integrated microchip system of claim 1, having three microchips.
3. The integrated microchip system of claim 1, having two microchips.
4. The integrated microchip system of claim 1, wherein the microchips are made of
15 glass.
5. The integrated microchip system of claim 1, wherein any or all of the joining edges of the microchips are coated with a thin layer of Cr/Au film, and a monolayer of a hydrophobic compound.
- 20 6. The integrated microchip system of claim 1, wherein at least some of said capillary channels are filled with media solution
7. A method for microchip system integration, comprising moving the microchips of
25 claim 1 to connect and disconnect said capillary channels of the microchips while keeping the microchips in physical contact.
8. A method for microchip system integration, comprising
 - (i) moving the microchips of claim 6 to connect and disconnect said capillary
30 channels of the microchips while keeping the microchips in physical contact; and

- (ii) transferring said solution between said capillary channels.
9. A method for microchip system integration, comprising
- (i) separating the microchips of claim 1 to disrupt the capillary channel connection;
 - (ii) moving the microchips to a desired position;
 - (iii) re-establishing contact of the chips such that said capillary channels are connected.
10. A method for microchip system integration, comprising
- (i) separating the microchips of claim 6 to disrupt the capillary channel connection and the fluid connection between the capillary channels;
 - (ii) moving the microchips to a desired position;
 - (iii) re-establishing contact of the chips such that said capillary channels are connected;
 - (iv) transferring solution between the capillary channels.
11. An integrated microchip system, comprising:
- (i) a microfabricated microchip containing capillary channels;
 - (ii) at least one miniature valve;
 - (iii) means for connecting said at least one valve to said microchip; and
 - (iv) an actuator.
12. The integrated microchip system of claim 11, wherein said at least one valve is in top contact with said microchip.
13. The integrated microchip system of claim 12, wherein said at least one valve is a rotary valve.
14. The integrated microchip system of claim 11, wherein said at least one valve is a linear sliding valve.

15. The integrated microchip system of claim 11, wherein said at least one valve is in edge contact with said microchip.
- 5 16. The integrated microchip system of claim 11, wherein said microchip is made of glass, and said at least one valve is made of plastic.
17. The integrated microchip system of claim 11, wherein at least some of said capillary channels are filled with media solution
- 10 18. A method for microchip system integration, comprising moving said at least one miniature valve of claim 11 to connect and disconnect the capillary channels of the microchip.
- 15 19. A method for microchip system integration, comprising moving said at least one miniature valve of claim 17 to connect and disconnect the capillary channels of the microchip, and transferring the solution between the capillary channels.
20. A method for fabricating very small holes with very high aspect ratios in glass, comprising:
- 20 (i) fabricating small grooves on one surface of a glass plate;
- (ii) dicing a short strips from one edge of said plate;
- (iii) flattening an edge of a blank glass plate;
- (iv) placing the groove surface of the diced strip against the flattened edge of the blank glass plate;
- 25 (v) bonding the diced strip and the blank glass plate together at high temperature;
- (vi) lapping both sides of the bonded glass plate and strip to insure flatness;
- (vii) aligning and bonding the bonded glass plate and strip to another glass plate containing groove structures to form a complete microfabricated device.
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